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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/903,747	07/13/2001	Yoshinari Miyamoto	211372US0X	2039

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EXAMINER

OLTMANS, ANDREW L

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 01/13/2003

10

Please find below and/or attached an Office communication concerning this application or proceeding.

43

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/903,747		MIYAMOTO ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Andrew L Oltmans		1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 October 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-11 and 15 is/are rejected.
- 7) ☒ Claim(s) 2,12 and 14 is/are objected to.
- 8) ☒ Claim(s) 1-15 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
     If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
     a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>7</u> . | 6) <input type="checkbox"/> Other:  |

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of Group I, claims 1-12 (and newly presented claims 14 and 15) in Paper No. 9 is acknowledged. The traversal is on the ground(s) that the Office has failed to provide sufficient support and/or examples to support its assertion and there would be no serious burden in searching both inventions (page 3 of applicant's response). This is not found persuasive because, the examiner provided both reasons and an example for the restriction requirement (see paragraph 2 of the previous Office Action). According to MPEP 803:

Examiners must provide reasons and/or examples to support conclusions, but need not cite documents to support the restriction requirement in most cases.

Notwithstanding the reasons and example set forth in the previous Office Action, the examiner further notes that the reasoning set forth by the examiner in the restriction requirement (i.e. that the process can be practiced by a materially different apparatus) is supported by the references cited in the instant specification (Japanese Patent Laid-open Publication No. 2000-96206 (page 3 of the specification) and Journal of the Metallurgical Society of Japan, vol. 32, No. 12, page 845 (page 5 of the specification)). Both references both recite processes of piling up a first substance, delivering a second substance on the substrate and forming an intermetallic layer (see e.g. claim 1), wherein neither process is necessarily produced by the apparatus of claim 13. With respect to applicant's argument that the additional search would not pose a serious burden on the examiner, each invention requires its own independent search, not required by other groups of inventions. Each invention also requires independent consideration of prior art, formulation of

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rejections, and consideration of different issues. Therefore, the search of the additional invention would constitute a serious burden on the examiner.

The requirement is still deemed proper and is therefore made FINAL.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 3 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claim 3 recites a step of forming a "building up coating layer... on a base material". The claim is indefinite because it is unclear what relationship the building up coating layer of claim 3 has to the coating and base material of claims 1 or 2 (which claim 3 is dependent). For example, is the building up coating layer beneath the first and second substance coatings? Is the building up coating layer independent of the coating system recited in claims 1 or 2? Is the building up coating layer on the same base material, but is a different location than the first and second substance layers? Additionally, claim 3 recites that the layer is on "a base material"; however, it is unclear whether this base material is the same as "a base material" of claims 1 or 2.

b. In the last line of claim 7, the phrase, "or a metal homologous thereto", renders the claim indefinite because it is unclear what metals are included in the recited group. For example, is the metal simply a transition metal? Is the metal a metal from the same group in the periodic table? Is the metal simply a similar looking metal to the first or

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second substance? Is the metal chemically similar to the first or second substance? The examiner notes the example of a metal homologous thereto given in the specification at page 33, lines 7-9; however, the example is insufficient to define the term recited in the claim in a manner in which one of ordinary skill in the art would be able to determine the scope of the group "a metal homologous thereto".

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claussen et al. 6,051,277***

5. Claims 1, 3-11 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Claussen et al. 6,051,277 (Claussen).

Claussen teaches a method of forming a coating layer of an intermetallic compound on a base material, wherein the method includes the steps of piling up a first substance on the base material, as recited in claim 1 (col 5):

The green compact or precursor can, however, also be built up in layers on a basic part, for example by immersing the basic part in a powder suspension (dip-coating), by spraying on the suspension or by using coating techniques such as thermal or plasma spraying. In this case the powder suspension is prepared by suspending the ground starting materials for production of the green compact in an aqueous or organic solvent. According to this embodiment of the

[emphasis added by examiner]

a second substance is delivered onto the first substrate and the first and second substance are reacted in order to form a coating layer comprising an intermetallic compound, as recited in claims 1 and 11 (col 6):

The green compact or precursor prepared in the manner described is then brought into contact with molten alu-  
20 minium or a molten aluminium alloy until it is completely  
or, at least in the surface region, partly converted into  $\text{Al}_2\text{O}_3$   
and aluminides. Suitable temperatures range from 660 to 1300° C., preferably being between 750 and 1100° C. The

[emphasis added by examiner]

With respect to claim 3 (as best understood, see paragraph 3, above), the building up layer does not distinguish over the built up layers on the green compact or precursor can taught by Claussen (col 5, lines 53-56). With respect to claims 4, 9 and 10, Claussen teaches that the first substance is in powder form and may include oxide, carbide, nitride or boride of Ni, Co, Fe, Nb, V, Mo, W, Cr or Ta, as instantly claimed (col 4, lines 42-63 and col 5, lines 5-10 and 22-26). With respect to claims 5 and 8, Claussen teaches that the second substance is a molten aluminum (col 6, lines 18-22). With respect to claims 6 and 7, the base material (i.e. the green compact or precursor) constitutes Al in the form of  $\text{AlO}_3$ , iron, nickel, cobalt or niobium (col 4, line 35 and lines 42-44). The claims do not distinguish over the teachings of Claussen.

***Rafferty et al. 5,997,604***

6. Claims 1, 3-7 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Rafferty et al. 5,997,604 (Rafferty).

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Rafferty teaches a method of forming a coating layer of an intermetallic compound on a base material, wherein the method includes the steps of piling up a first substance, constituting nickel, cobalt, chromium or aluminum, on the base material, as recited in claims 1 and 4 (figure 1 and col 2):

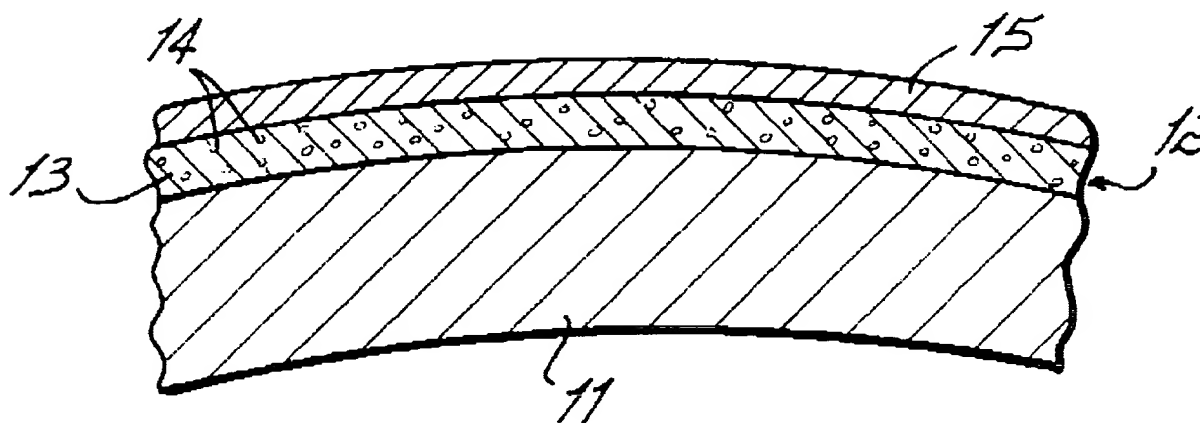


FIG. 1

35 The binder 13 is combined with finely ground particulate metal 14 to form a binder slurry 15. The metal is a corrosion resistant metal and is specifically platinum, platinum aluminum alloy or MCrAlY. Generally the particle size of the

[emphasis added by examiner]

The MCrAlY itself is a well known commercially available corrosion resistant alloy. The M represents nickel, 50 cobalt or a nickel cobalt alloy. One commercially available,

[emphasis added by examiner]

a second substance is delivered onto the first substrate, as recited in claims 1 and 5 (col

3):

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In addition to the binder, tape 15 includes a powdered (-100 preferably at least -325 mesh) metal or metal alloy. Suitable metals include aluminum, chromium, chromium aluminum alloy, silicon aluminum alloy, titanium aluminum alloy, vanadium aluminum alloy, and vanadium. These

[emphasis added by examiner]

and the first and second substance are reacted in order to form an intermetallic compound, as recited in claims 1 and 11 (col 4):

in the inert atmosphere. This bonds the corrosion resistant particles to the surface with a metalide coating.

[emphasis added by examiner]

With respect to claim 3 (as best understood, see paragraph 3, above), the building up layer does not distinguish over the layers shown in figure 1 and the layers taught in column 4, lines 46-55.

With respect to claims 6-7, Rafferty teaches the base materials instantly claimed, including a base material that has iron, nickel, cobalt, aluminum or niobium (col 2):

The metal part 11 can be a wide variety of different alloys including stainless steel as well as nickel, cobalt, titanium and tungsten based superalloys. These include Rene 35, Rene 41, Rene 77, Rene 80, Rene 80II, Rene 95, Rene 125, Rene 142, Inconel 713, and Inconel 718, Hastelloy X, Wasp alloy, Haynes 188, I.605, X-40, and MarM-509. In particular, the part 11 can be a part from a jet engine which requires exceptional corrosion resistance.

The claims do not distinguish over the teachings of Rafferty.



*Allowable Subject Matter*

7. Claims 2, 12 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

a. Instant claims 2 and 14 would allowable over the prior art because the prior art fails to teach or suggest, either alone or in combination, the instantly claimed method of welding a plurality of base materials to each other with an intermetallic compound, wherein the method includes the claimed step of reacting the second substance with the first substance to cause the plurality of base material to be bonded to each other through a coating layer of an intermetallic compound.

b. Instant claim 12 would allowable over the prior art because the prior art fails to teach or suggest, either alone or in combination, the instantly claimed method of preparing a three-dimensional molding with the use of a computerized control system, wherein the method includes the steps wherein an intermetallic compound is formed and then performing additional steps wherein another layer of intermetallic compound is formed on another portion of the base material.

*Conclusion*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew L. Oltmans whose telephone number is 703-308-2594. The examiner can normally be reached 8:30-5:00 Monday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 703-308-1146. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-873-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

A handwritten signature in black ink, appearing to read "Andrew L. Oltmans", with a stylized flourish at the end.

Andrew L. Oltmans

Examiner

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January 7, 2003